

**REMARKS**

**I. Status of Claims**

Claims 1-9 are pending in this application, the independent claims being claims 1 and 9. By this Amendment, claims 1, 5 and 6 are amended, and claim 9 is newly presented.

**II. Summary of Examiner Interview**

Applicants' attorney gratefully acknowledges the courtesies extended to him by Examiner Rachuba at the interview held February 23, 2005. The reasons presented at the interview as warranting favorable action are incorporated into the remarks below and constitute Applicants' record of the interview.

**III. Summary of Action**

In the Official Action, the Information Disclosure Statement filed 15 September 2003 was refused entry for failing to comply with 37 C.F.R. §1.98(a)(3), and claims 1-5, 7 and 8 were rejected under 35 U.S.C. §103(a), as unpatentable over Applicants' disclosure at paragraph [0002] (Applicants' Admitted Prior Art - "AAPA"), in view of U.S. Patent No. 2,763,105 (Feeley). Reconsideration and withdrawal of the objection and rejection respectfully are requested in view of the above amendments and the following remarks.

**IV. Allowable Subject Matter**

Initially, Applicants gratefully acknowledge the Examiner's indication in the Office Action that the application contains allowable subject matter, and that claim 6 is allowable over the prior art.

In this regard, allowable dependent claim 6 has been re-presented as new independent claim 9. Accordingly, Applicants submit that newly presented independent claim 9 is in condition for allowance, as agreed to at the personal interview.

**V. Response to Outstanding Rejection**

The rejection of claims 1-5, 7 and 8 over the cited art respectfully is traversed. Nevertheless, without conceding the propriety of the rejection, claims 1, 5 and 6 have been amended more clearly to recite various novel aspects of the claimed invention, with particular attention to the Examiner's comments. No new matter has been added.

**A. Independent Claim 1**

The present invention relates to a novel grinding wheel. In one aspect, as now recited in independent claim 1, the grinding wheel comprises: an annular core body having a porous structure which includes a multiplicity of aggregate particles and a resin bond that holds the aggregate particles together; an abrasive layer which is disposed radially outwardly of the annular core body and which includes a multiplicity of abrasive grains and a vitrified bond that holds the abrasive grains together; and an impermeable coating which is formed of a synthetic resin, and which covers a surface of the annular core body.

In this aspect, the annular core body has a porous structure which includes a multiplicity of aggregate particles and a resin bond that holds the aggregate particles together, and an impermeable coating which is formed of a synthetic resin, and which covers a surface of the annular core body. As discussed in greater detail in the present application, this aspect of the present invention provides a significant improvement over prior art annular core bodies having a porous structure, in that the impermeable synthetic resin coating prevents infiltration of, e.g., cutting fluid or other moisture, into the porous core structure, which infiltration can cause a change in volume of the core body, resulting in cracks in the abrasive layer. (See paragraphs [0023] and [0025]).

**B. Prior Art Distinguished**

The prior art fails to anticipate this aspect of the claimed invention. Moreover, Applicants submit that there are differences between the subject matter sought to be patented

and the prior art, such that the subject matter taken as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made.

Applicants' disclosure at paragraph [0002] (Applicants' Admitted Prior Art - AAPA), discloses a vitrified grinding wheel having an annular core body and an abrasive layer disposed radially outwardly of the annular core body and which includes a multiplicity of abrasive grains held together by a vitrified bond. AAPA further discloses that commonly the annular core body may be a synthetic resin, and that the abrasive layer may be provided by standard abrasive grains or super abrasive grains. AAPA further discloses that the grinding wheel may be a segment-chip-type grinding wheel, in which the abrasive layer is provided by a plurality of abrasive segment chips bonded to an outer circumferential surface of the annular core body. AAPA further discloses in paragraph [0004] a grinding wheel including an annular core body having an elastic modulus of  $1,500\text{--}5,000\text{ kgf/mm}^2$ , where the core body having an elasticity serves to absorb oscillation of the grinding surface of the grinding wheel which can be induced by runout (eccentricity), out of balance, or out of round of the grinding wheel. However, as stated in paragraph [0005], AAPA notes that such prior art exhibits problematic cracks caused by a change in the volume of the annular core body which is subjected to a cutting fluid used in a grinding operation or moisture contained in the atmosphere.

The Feeley '105 patent relates to a burnishing wheel, and discloses a burnishing wheel comprising a plurality of layers of glass fiber fabric (such as, for example, woven glass cloth), each impregnated with a thermosettable resinous binder. However, Applicants submit that the Feeley '105 patent fails to disclose or suggest at least the above-described features of the present invention. Nowhere does the Feeley '105 patent disclose or suggest the feature of an annular core body having a porous structure including a multiplicity of aggregate particles and a resin bond that holds the aggregate particles together. Nor does the Feeley '105 patent

disclose or suggest such a structure including an impermeable synthetic resin coating covering a surface of the annular core body, as disclosed and claimed in the present application.

In this regard, Applicants note the claimed invention provides an impermeable synthetic resin coating on the surface of the annular core body to prevent cutting fluid or other moisture from entering the pores of the annular core body. Applicants also note that the Feeley '105 patent burnishing wheel (1) is not made of a porous material subject to volume changes, and (2) is not used with a cutting fluid. Accordingly, Applicants submit there is no motivation to provide such an impermeable synthetic resin coating on a surface of the annular core body. Further, Applicants submit there is no motivation to modify this structure to achieve the claimed invention. Nor is the Feeley '105 patent understood to add anything to Applicants' admitted prior art - AAPA that would make obvious the claimed invention.

For the above reasons, Applicants submit that independent claim 1 is allowable over the cited art.

Claims 2-8 depend from claim 1 and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with base claim 1, and is believed allowable in its own right. Independent consideration of the dependent claims respectfully is requested.

**VI. Formal Matters**

The specification is amended as to matters of form, including English spelling, grammar, idiom, syntax and the like. Support for these amendments may be found in the original application. No new matter has been added.

**VII. Information Disclosure Statement**

Applicants respectfully submit that the Information Disclosure Statement filed September 15, 2003 complies with 37 C.F.R. §1.98(a)(3), and renew their request that such

information be entered and considered on the merits. In the Information Disclosure Statement, a copy of the Japanese Patent Document No. 5-285848 was submitted together with an English language statement of relevance, as required. The Examiner's attention is directed to the cover page of the Information Disclosure Statement and paragraph [0004] of the specification. The cover page of the Information Disclosure Statement indicates that the English language statement of relevance may be found in the specification. Paragraph [0004] discloses pertinent features of the JP '848 patent.

In this regard, Applicants acknowledge that a copy of an incorrect Japanese English translation (Japanese Patent Document No. 05-285248) inadvertently was submitted with the prior Information Disclosure Statement, but submit that such additional information is not required under 37 C.F.R. §1.98(a)(3). Nevertheless, a copy of the JP 5-285848 reference and an English translation thereof also is provided herewith for the Examiner's consideration.

Favorable reconsideration respectfully is requested.

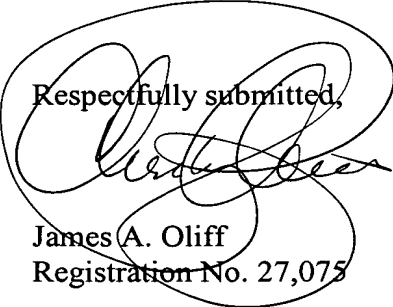
A duplicate copy of the Form PTO-1449 originally submitted September 15, 2003, is submitted herewith for the Examiner's convenience.

#### **VIII. Conclusion**

Applicants believe the present Amendment is responsive to each of the points raised by the Examiner in the Office Action and the personal interview, and respectfully submit that this application is in condition for allowance. Favorable consideration of the claims and prompt allowance of the present application earnestly are solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

  
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JAO:CPW/lbg

Attachments:

Petition for Extension of Time  
Substitute Specification  
Marked-up copy of Specification  
Copy of prior-filed PTO-1449 JP-285848 reference and English translation thereof

Date: February 24, 2005

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